Remarks

Claims 1 and 18 have been amended as shown above. Antecedent basis for the amendment may be found at, e.g., paragraphs 0021 and 0029 and Fig. 2. Following entry of this amendment, claims 1-28 will be pending in this application.

Applicants thank the Examiner for extending to the undersigned attorney the courtesy of an in-person interview on Thursday, November 17, 2005. The substance of the interview is correctly set forth in the Interview Summary prepared by the Examiner. The interview also involved the remarks set out below. Reconsideration of the rejections is requested in view of those remarks, the King Declaration and the Pekurovsky Declaration.

Rejection of Claims 1-2, 5-15 and 18-24 under 35 U.S.C. §103(a)

Claims 1-2, 5-15 and 18-24 were rejected under 35 USC §103(a) as being unpatentable over U.S. Patent Application Publication No. US 2003/0203101 A1 (Haubrich et al.) in view of U.S. Patent No. 5,866,195 (Lemelson) on grounds *inter alia* that:

> *"Haubrich et al. teaches forming patterned structures on a substrate to form electrophoretic displays, circuits, etc. The process steps comprise printing on the substrate a strippable polymer-based maskant material which represents the desired pattern; depositing on the patterned substrate a conductive metal which is substrate adherent; and removing the strippable material with conductive material thereon by means including mechanical (physical stripping/adhesive tape peeling, [0043]. It is the Examiner's position that this would have reasonably suggested other mechanical/physical means well-known to remove coatings such as impact/media blasting. The process leaves conductive material on surfaces where the strippable maskant was NOT present, and vice-versa [0029]. The strippable maskant polymer pattern is applied by printing methods such as screen printing, ink jet, gravure, etc [0018]. The method provides the benefit of a simpler, cleaner method than photolithography or etching to selectively form patterned surfaces. See also claims 1, 3, 4 on page 6. Applying a second, substrate adherent polymer rather than a metal to the patterned substrate surface is not taught. However, Lemelson teaches that*

conductive polymers may be used for circuitry and other electronic applications, and may be applied to substrates by dip or roller coating, etc [col. 21, 39-51], and further col. 22, 19-25 teaches the equivalence of such conductive polymers with metals and semiconductors, and the replacement of such conventional materials by the conductive polymers, because of the expectation of equivalent electrical conduction. Per claim 2, the strippable maskant polymer necessarily has a lower surface energy than the substrate adherent polymer to allow its removal while maintaining the conductive polymer on the substrate. Thus, it would have obvious to one of ordinary skill in the art at the time the invention was made to modify the method of Haubrich et al. by substituting the conductive polymers of Lemelson for the metals of the conductive layer of Haubrich et al. because of the expectation of forming patterned conductive articles for electronic applications, wherein the conductive polymers substituted for the conductive metals would have reasonably provided equivalent performance.

"As to claims 5-8, 18-22, the dimensions and height of the polymer would have been determined by the skilled artisan using routine experimentation for any desired end-use application." (see the Final Rejection at pages 2-3).

And on grounds *inter alia* that:

"Applicants arguments that the prior art does "not provide profilometer results" is not commensurate with scope of claims because neither claim 1, nor any of the non-allowed claims refer to such results and therefore the argument is not further considered. Haubrich does teach making well-defined patterned films on a substrate comprising

- *applying a patterned strippable maskant on portions of the substrate where a subsequently applied film is not to be formed,*
- *applying a continuous film of a* conductive metallic material *on substrate and patterned strippable maskant in uniform thickness relative to the substrate surface (see fig. 3C, contrary to Applicants arguments on page 13, of Remarks),*
- *stripping away the strippable maskant by peeling (a mechanical means).*

"Thus Haubrich cites a conductive metallic material *to form conductive patterns on a substrate rather than the polymer of Applicants' claim (as previously acknowledged). However, the secondary reference by Lemelson teaches forming conductive circuitry patterns on a substrate specifically using conductive polymers, and further explicitly teaches on col. 22 to use such materials "in place of one or more of the metals and semi conducting films and layers to construct electrical circuits". Thus, substitution of conductive polymers for metals and semiconductors is expressly taught, and it therefore would have been obvious to substitute the metals of Haubrich with the polymers of Lemelson, not because of a vague suggestion or rationale, but because of an express teaching of substituting one for another.*

"The issue of whether or not Lemelson supplies working examples, data, or whatever to allow evaluation is irrelevant to the fact the teaching is expressly revealed, and the Examiner is required to abide by the teachings of a valid patent. Clearly the polymers of Lemelson are sufficiently adherent to the substrate to withstand the rigors of use as circuitry so it is reasonable to expect they will have similar bonding/ adhesion as metals, certainly to withstand the non-rigorous forces of adhesive tape lifting when attached directly to a substrate! Hence Applicants arguments on pages 10-11 are not persuasive. Lemelson is not directed to the additional steps already clearly revealed by Haubrich so the reasons for including such arguments are unclear. Applicants further argue the embodiments of Haubrich utilizing a second repellant material. This is not cited in the Examiner's rejection per se, but Applicants are reminded that such extra steps are not prohibited by virtue of the open-ended transition wording of the claims. Hence this argument is not persuasive." (see the Final Rejection at pages 5-6).

Reconsideration is requested. As to rejected claims 1, 2, 5-13 and 18-23 (all of which recite a "substantially constant height" feature), note that Haubrich et al. apply a pattern of ink lines **204** and form a conductive metal oxide (ITO) layer **206** over the pattern, as shown in Haubrich et al. **Fig. 3C** which is reproduced below:

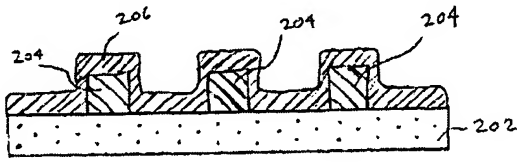


FIG. 3C

The Final Rejection proposes to substitute a layer of conductive polymer from Lemelson for Haubrich et al.'s ITO layer **206**. As explained in the Pekurovsky Declaration (see paragraph 5), the combination proposed in the Final Rejection result would not apply a substrate-adherent polymer over a pattern and over at least a portion of a substrate in a continuous layer "having a substantially constant height with respect to the substrate over the pattern and substrate portion" as recited in independent claim 1 and dependent claim 18. Layer in **206** Haubrich et al. **Fig. 3C** does not have such a substantially constant height.

The Pekurovsky Declaration also explains (see paragraph 4) that Haubrich et al. **FIGS. 3A** through **3D** are a "schematic" view (see Haubrich et al. paragraph **0011**) and that Haubrich et al. do not say **FIGS. 3A** through **3D** are to scale or that they accurately depict surface contours.

The Pekurovsky Declaration shows (see paragraphs 8 and 9) an attempted use of adhesive tape for mechanical removal of a conductive ink coating from an article whose profile was like the profile in Haubrich et al. **Fig. 3C**. The conductive ink was not cleanly removed. The Pekurovsky Declaration also shows (see paragraphs 9-11) that it is much easier to obtain clean mechanical removal of a coating from a pattern on a substrate if the coating forms "a continuous layer having a substantially constant height with respect to the substrate over the pattern and substrate portion". This observation is not disclosed or suggested in Haubrich et al. or Lemelson.

As to independent claim 14 and dependent claims 15 and 24 (which recite an adhesive tape removal feature but not the substantially constant height feature), the King Declaration and its attached Record of Invention (ROI) show that the ROI described the subject matter of claim 14 (see King Declaration paragraph 6), claim 15 (see paragraphs 6-7) and claim 24 (see paragraphs 6 and 13). The King Declaration also shows that the ROI was read, understood and witnessed by Mr. King prior to April 24, 2002 which is the filing date of Haubrich et al.

Provisional Application 60/375,902. The King Declaration accordingly removes Haubrich et al. as a reference against at least rejected claims 14, 15 and 24[1].

The proposed combination of Haubrich et al. and Lemelson does not disclose or suggest the method recited in rejected claims 1-2, 5-15 and 18-24. Applicants accordingly request withdrawal of the 35 USC §103(a) rejection of claims 1-2, 5-15 and 18-24 as being unpatentable over Haubrich et al. in view of Lemelson.

Rejection of Claims 3 and 16 under 35 U.S.C. §103(a)

Claims 3 and 16 were rejected under 35 U.S.C. §103(a) as being unpatentable over Haubrich et al. in view of Lemelson and further in view of U.S. Patent No. 5,759,625 (Laubacher et al.) on grounds that:

"Haubrich et al. and Lemelson are cited for the same reasons previously discussed, which are incorporated herein. A fluoropolymer-based maskant material is not cited.

"Laubacher et al. teaches on column 1, 43-50 that amorphous fluoropolymers have a "smooth, non-stick character" which resists adherence to other polymers, properties which would make the fluorocarbon polymer beneficial as the strippable polymer-based maskant of Haubrich et al. Therefore, it would have obvious to one of ordinary skill in the art at the time the invention was made to modify the method of Haubrich et al. in view of Lemelson by utilizing the fluorocarbon polymer materials of Laubacher et al. as the

[1] The King Declaration also removes Haubrich et al as a reference as to at least rejected claim 1 (see paragraphs 6 and 8), claim 2 (see paragraphs 6-8), claim 5 (see paragraphs 6, 8 and 9), claim 7 (see paragraphs 6, 8 and 10), claim 8 (see paragraphs 6, 8 and 11), claim 10 (see paragraphs 6, 8 and 9), claim 12 (see paragraphs 6, 8 and 12), claim 13 (see paragraphs 6, 8 and 13), claim 18 (see paragraphs 6 and 8), claim 19 (see paragraphs 6, 8 and 9), claim 21 (see paragraphs 6, 8 and 10), claim 22 (see paragraphs 6, 8 and 11) and claim 23 (see paragraphs 6, 8 and 12). Applicants reserve the right to rely on the King Declaration for these claims if need be in case their other arguments concerning Haubrich et al. are deemed to be insufficient to overcome the rejection.

strippable maskant because of the low adhesion properties of the fluoropolymer materials, which would make them readily strippable."

Reconsideration is requested. As to claim 3, Haubrich et al. and Lemelson should not be combined for the reasons already mentioned above with respect to claim 1. Also, the King Declaration shows that the ROI described the subject matter of claim 3 (see King Declaration paragraphs 6 and 8) and claim 16 (see paragraph 6). The King Declaration accordingly removes Haubrich et al. as a reference against both claims 3 and 16.

Laubacher et al. is primarily directed to a plasma etching technique for increasing adhesion of a photoresist to a fluoropolymer. Such treatment could make a fluoropolymer less likely, not more likely, to be selected for the "strippable maskant" referred to in the Final Rejection.

Moreover, Laubacher et al. does not show applying a substrate-adherent polymer over a pattern and over at least a portion of a substrate in a continuous layer having a "substantially constant height with respect to the substrate over the pattern and substrate portion" as recited in claim 1 from which claim 3 depends. Laubacher et al. also does not show the adhesive tape removal feature recited in claim 14 from which claim 16 depends.

The proposed combination of Haubrich et al., Lemelson and Laubacher et al. does not disclose or suggest the method recited in rejected claims 3 and 16. Applicants accordingly request withdrawal of the 35 USC §103(a) rejection of claims 3 and 16 as being unpatentable over Haubrich et al. in view of Lemelson and further in view of Laubacher et al.

Conclusion

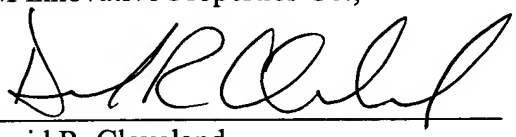
Applicants have made an earnest effort to address the Final Rejection. The proposed combination of Haubrich et al. and Lemelson would not apply a substrate-adherent polymer over a pattern and over at least a portion of a substrate in a continuous layer having a "substantially constant height with respect to the substrate over the pattern and substrate portion". The King Declaration removes Haubrich et al. as a reference against at least rejected claims 3, 14-16 and 24. Laubacher et al. does not show the recited "substantially constant

height with respect to the substrate over the pattern and substrate portion" feature of claim 3 or the recited adhesive tape removal feature of claim 16.

Withdrawal of the rejections and passage of the application to the issue branch are respectfully requested. The Examiner is encouraged to telephone the undersigned attorney if there any questions regarding this application or any suggested further amendments.

Respectfully submitted on behalf of
3M Innovative Properties Co.,

December 21, 2005



David R. Cleveland
Registration No: 29,524
612-331-7412 (telephone)
612-331-7401 (facsimile)

IPLM Group, P.A.
P.O. Box 18455
Minneapolis, MN 55418

All correspondence regarding this application should be directed to:

Pamela L. Stewart
Office of Intellectual Property Counsel
3M Innovative Properties Company
P.O. Box 33427
St. Paul, Minnesota 55133-3427
Telephone: (651) 733-2059
Facsimile: (651) 736-3833